IN THE CLAIMS

1. (currently amended) A breathing assistance device, comprising:

a turbine to generate a flow of pressurised respiratory gas,

a duct adapted to carry the pressurised gas to a patient, and

control means for controlling gas pressure capable of ~~elaborating~~ computing a pressure setting for the turbine,

wherein the turbine is ~~associated~~ connected to a speed sensor capable of acquiring a signal corresponding to a rotation speed of a rotating element of the turbine, and the control means includes means of calculation connected to said speed sensor to ~~elaborate~~ compute the pressure setting using only said speed signal ~~the pressure setting~~ and send the pressure setting to the turbine~~.~~, said means of calculation being adapted to detect new inspiratory or expiratory cycles using only said speed signal, and consequently adapting a level of said pressure setting.

2. (previously presented) A device as claimed in claim 1, wherein said speed sensor implements a Hall effect sensor.

3. (previously presented) A device as claimed in claim 1, wherein said speed sensor is a sensor capable of acquiring a turbine speed signal directly connected to the rotation speed of the rotating element of the turbine.

4. (currently amended) A device as claimed in claim 1, wherein the means of calculation ~~elaborates~~ computes the pressure setting according to variations in speed.

5. (cancelled)

6. (currently amended) A device as claimed in claim ~~5~~1, ~~wherein said means of calculation is associated to~~further comprising a program for detecting an inspiratory cycle using a comparison between:

a ~~memorized~~ speed value ~~memorized~~stored in a memory of the device, said speed value being extrapolated using recent values of measured speeds, and

an actually measured instantaneous speed.

7. (currently amended) A device as claimed in claim ~~5~~1, ~~wherein said means of calculation is associated to~~ further comprising a program for detecting an inspiratory cycle using a comparison between:

a ~~memorized~~ speed value ~~memorized~~stored in a memory of the device, said speed value being representative of a recent speed bearing, and

an actually measured instantaneous speed.

8. (currently amended) A device as claimed in claim 6, ~~wherein said means of calculation is associated to~~further comprising a program for detecting an inspiratory cycle using a comparison between:

a ~~memorized~~ speed value ~~memorized~~stored in a memory of the device, said speed value being representative of a speed at ~~the~~ an end of an expiratory cycle, and

an actually measured instantaneous speed.

9. (currently amended) A device as claimed in claim 6, further comprising ~~wherein said means of calculation is associated to~~ several programs for detecting an inspiratory cycle operating simultaneously, and is capable of ~~elaborating~~

computing a pressure setting corresponding to a start of inspiratory cycle as soon as one of said programs for detecting the inspiratory cycle has signalled a start of inspiration.

10. (currently amended) A device as claimed in claim 6, wherein the program for detecting the inspiratory cycle ~~is associated to disabling means~~ is configured to be disabled for a determined duration following ~~the~~ a start of a new expiratory cycle.

11. (currently amended) A device as claimed in claim ~~5~~1, ~~wherein the means of calculation is associated to~~further comprising a program for detecting an expiratory cycle.

12. (currently amended) A device as claimed in claim 11, wherein said program for detecting the expiratory cycle uses a comparison between:

a ~~memorized~~ maximum turbine speed stored in a memory of the device and corresponding to an inspiratory cycle, and

an actually measured instantaneous speed.

13. (previously presented) A device as claimed in claim 1, wherein said means of calculation includes a microprocessor connected to the speed sensor and to a turbine pressure setting input.

14. (currently amended) A device as claimed in claim 1, wherein the device further includes a pressure-regulating loop comprising:

a pressure sensor on the duct, and

a circuit receiving the pressure setting coming from the means of calculation as well as a pressure measured by the pressure sensor, said circuit being capable of ~~elaborating~~

computing an instantaneous rotation speed setting for the turbine, said circuit being connected to a turbine speed setting input.

15. (currently amended) A method for regulating a pressure of a respiratory gas delivered by a turbine to a patient, the method comprising:

providing a signal representative of a rotation speed of a rotating element of the turbine; and

~~elaborating~~ computing a pressure setting for the turbine based only on the signal representative of the rotation speed, ~~.~~

said method being adapted to detect new inspiratory or expiratory cycles using only said signal, and of consequently adapting a level of the pressure setting.

16. (previously presented) A method as claimed in claim 15, wherein said signal corresponds to the rotation speed of the turbine rotor.

17. (cancelled)

18. (currently amended) A method as claimed in claim ~~17~~15, wherein the method implements a program for detecting an inspiratory cycle using a comparison between:

a ~~memorized~~ speed value stored in a memory, said speed value being extrapolated from recent values of measured speeds, and

an actually measured instantaneous speed.

19. (currently amended) A method as claimed in claim ~~17~~15, wherein the method implements a program for detecting an inspiratory cycle using a comparison between:

a ~~memorized~~ speed value stored in a memory, said speed value being representative of a recent speed bearing, and

an actually measured instantaneous speed.

20. (currently amended) A method as claimed in claim ~~17~~15, wherein the method implements a program for detecting inspiratory cycles using a comparison between:

a ~~memorized~~ speed value stored in a memory, said speed value being representative of a speed at the end of an expiratory cycle, and

an actually measured instantaneous speed.

21. (currently amended) A method as claimed in claim 18, wherein the method implements several programs for detecting inspiratory cycles operating simultaneously, and ~~elaborates~~ computes the pressure setting corresponding to an inspiratory flow as soon as one of said programs for detecting the inspiratory cycles has signalled the start of inspiration.

22. (currently amended) A method as claimed in claim 18, wherein the program for detecting inspiratory cycles is ~~associated with a stopping~~ disabled during a determined duration following the start of a new expiratory cycle.

23. (currently amended) A method as claimed in claim ~~17~~15, wherein the method implements a program for detecting expiratory cycles.

24. (currently amended) A method as claimed in claim 23, wherein said program for detecting expiratory cycle uses a comparison between:

a ~~memorized~~ maximum turbine speed stored in a memory and corresponding to an inspiratory cycle, and

an actually measured instantaneous speed.